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Indian Standard

IDENTIFICATION CODE FOR ROLLING BEARINGS

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

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May 1967

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IDENTIFICATION CODE FOR ROLLING BEARINGS

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Indian Standard

IDENTIFICATION CODE FOR ROLLING BEARINGS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 3 May 1967, after the draft finalized by the Bearings Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 This standard has been formulated to provide an identification code and, as far as possible, to describe each bearing, on the basis of dimensional and functional interchangeability.

0.3 This standard also provides a simplified system for identification of bearings for the purpose of facilitating communications between the users and the manufacturers in the country. In addition, an identification code for adapter and withdrawal sleeves is given in Appendix A. Further, a brief outline of the diameter and width series for boundary dimensions for rolling bearings is given in Appendix B.

0.4 It is felt that some of the sections of the ISO code may not be of much interest until special types of bearings are produced in the country. As such, for marking the identification code on bearings, a simplified national standard code of practice has been formulated.

0.5 This standard is based on ISO/R 300/I-1963 'Identification code: Group I Radial ball and roller bearings; Group II Thrust ball and roller bearings; Group III Tapered roller bearings, metric series' issued by the International Organization for Standardization.

1. SCOPE

1.1 This standard provides a code for identification of rolling bearings. The code also incorporates the dimensional and functional interchangeability of the bearings.

1.1.1 This standard applies only to the bearings whose boundary dimensions and tolerances are in agreement with IS : 2513-1963* and IS : 3697-1966†.

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*Boundary dimensions for rolling bearings for general engineering purposes.

†Boundary dimensions for tapered roller bearings.

1.1.2 This standard deals with the following three groups of rolling bearings:

Group I	Radial ball and roller bearings,
Group II	Thrust ball and roller bearings, and
Group III	Tapered roller bearings.

2. STRUCTURE OF CODING SYSTEM

2.1 The code number has been formulated by a system of alternating groups of numerals and letters with a view to identifying the type, size and specific characteristics conditioned by installation requirements of ball or roller bearings.

2.2 The code number has been divided into two parts, the basic number and the supplementary number.

2.2.1 The basic number identifies the size and type of bearing by means of a group of numerals indicating the bearing bore diameter, followed by a group of letters, indicating the bearing basic type which is further followed by a group of numerals indicating the classification of the bearing in terms of boundary dimensions (outside diameter and the width or height) (*see* Table 1).

TABLE 1 SCHEMATIC ARRANGEMENT OF A COMPLETE ISO CODE NUMBER FOR ROLLING BEARINGS

Section 1			Section 2	Section 3	Section 4	Section 5
Basic Number			Supplementary Number			
Bore	Type	Outside diameter and width (or height)	Modification of design	Internal fit and tolerances	Lubricants and preservatives	Special requirements
0000	AAA	00	AAAA	00	A	000

2.2.2 The supplementary number identifies the specific bearing characteristics conditioned by installation requirements by means of alternating groups of letters and numerals. Each such group shall be called a section.

2.3 The indicators in each section vary in numbers depending on the complexity of information conveyed by each. Each section deals only with one specific subject, and hence, shall be considered as a unit.

2.4 As the numerical and alphabetical sections alternate, it is evident that in addition to conveying specific information, each one also serves as a separator to keep otherwise similar sections apart. If a section is not used, it shall be replaced by a letter or a numeral to serve as a separator. The letter 'X' and the numeral '0' shall be used for this purpose.

2.5 The schematic arrangement of a complete ISO code number for rolling bearings is shown in Table 1.

2.6 The schematic arrangement of a complete ISI code number for rolling bearings shall be as shown in Table 2.

TABLE 2 SCHEMATIC ARRANGEMENT OF A COMPLETE ISI CODE NUMBER FOR ROLLING BEARINGS

Basic Number			Supplementary Number
Section 1			Section 2
Bore	Type	Outside diameter and width (or height)	Modification of design
0000	AAA	00	AAAA

2.7 The various types in the three groups of rolling bearings shall be identified by the letter symbol shown in Table 3.

TABLE 3 DESIGNATION OF GENERAL TYPE OF BEARING

Group	First Letter of Type Symbol	Class of Bearing
I	B R S	Radial ball bearings Cylindrical roller bearings Self-aligning roller bearings
II	T	Thrust ball and roller bearings
III	K	Tapered roller bearings

GROUP I

3. RADIAL BALL AND ROLLER BEARINGS

3.1 The schematic arrangement of a complete ISO code number for radial ball and roller bearings is given in Table 4.

TABLE 4 SCHEMATIC ARRANGEMENT OF A COMPLETE ISO CODE NUMBER FOR RADIAL BALL AND ROLLER BEARINGS

Basic Number			Supplementary Number						
Section 1			Section 2			Section 3		Section 4	Section 5
Type and boundary dimensions			Modification design			Internal fit and tolerances			
Bore	Type	Outside diameter and width	Cage and separators	Shields and scale	Bearing rings	Internal fit	Tolerance	Lubricants and preservatives	Special requirements
				Duplex mounting modification					
0000	AAA	00	A	AA	A	0	0	A	000

3.1.1 The code number is divided into five sections of which Section 1 constitutes the basic number and Sections 2 to 5 constitute the supplementary number. No symbol in Section 1 shall be omitted.

3.1.2 When Sections 2 to 5 are not needed, no symbol is shown. When one or more intermediate sections are not needed, the letter 'X' is used for Sections 2 and 4 and the numeral '0' for Section 3 to space the other sections apart. Unused sections that otherwise would end a number are not shown.

3.2 The schematic arrangement of a complete ISI code number for radial ball and roller bearings shall be as given in Table 5.

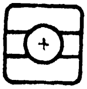
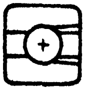
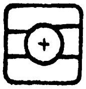
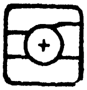
TABLE 5 SCHEMATIC ARRANGEMENT OF A COMPLETE ISI CODE NUMBER FOR RADIAL BALL AND ROLLER BEARINGS

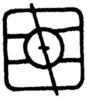
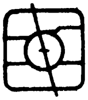
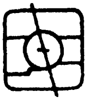
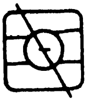
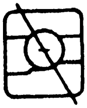
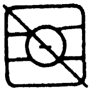
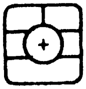
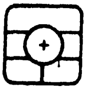
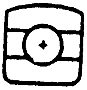
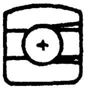
Basic Number			Supplementary Number		
Section 1			Section 2		
Type and boundary dimensions			Modification of design		
Bore	Type	Outside diameter and width	Cage and separators	Shields and seals	Bearing ring
				Duplex mounting modification	
000	AAA	00	A	AA	A

3.2.1 No symbol shall be shown in case Section 2 is not used and no symbol in Section 1 shall be omitted.

3.3 Bearing Type Symbols

3.3.1 The symbols for various types of ball bearings shall be as shown below:

Type	Description	Figure and Symbol	
Single row, radial contact	Non-filling slot assembly		BC
	Filling slot assembly		BL
	Non-separable counter-bore assembly		BH
	Separable assembly		BM

TYPE	DESCRIPTION	FIGURE AND SYMBOL
Single row, angular contact*	Non-separable Nominal contact angle from above 10° to and including 22°	 BN
	Separable outer ring Nominal contact angle from above 10° to and including 22°	 BNS
	Separable inner ring Nominal contact angle from above 10° to and including 22°	 BNT
	Non-separable Nominal contact angle from above 22° to and including 32°	 BA
	Separable inner ring Nominal contact angle from above 22° to and including 32°	 BAS
	Non-separable Nominal contact angle from above 32° to and including 45°	 BT
	Two-piece outer ring	 BY
	Two-piece inner ring	 BZ
Single row, radial contact, spherical outside surface	Non-filling slot assembly	 BCA
	Filling slot assembly	 BLA

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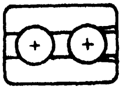
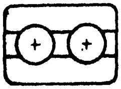
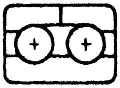
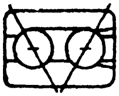
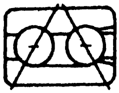
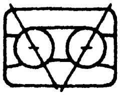
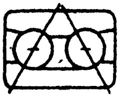
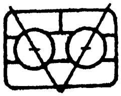
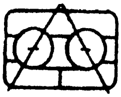
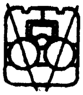
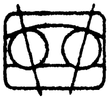
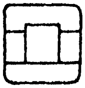
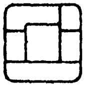
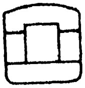
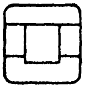
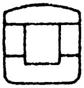
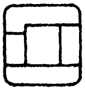
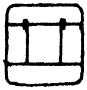
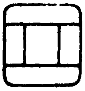
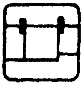
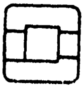
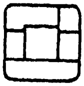
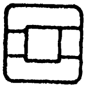
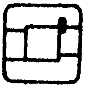
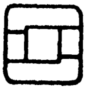
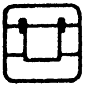
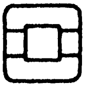
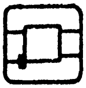
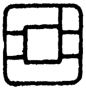
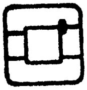
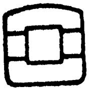
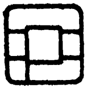
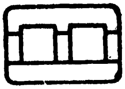
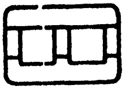
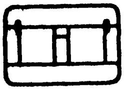
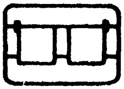
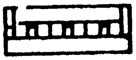
*A line through the ball contact point forms an acute angle with a perpendicular to the bearing axis of rotation.

Type	Description	Figure and Symbol
Double row, radial contact	Filling slot assembly	 BF
	Non-filling slot assembly	 BK
	Non-separable Two-piece outer ring	 BHA
Double row, angular contact	Filling slot assembly Vertex of contact angles inside bearing	 BD
	Filling slot assembly Vertex of contact angles outside bearing	 BE
	Non-filling slot assembly Vertex of contact angles inside bearing	 BJ
	Non-filling slot assembly Vertex of contact angles outside bearing	 BG
	Non-separable Vertex of contact angles inside bearing Two-piece outer ring	 BAA
	Separable Vertex of contact angles outside bearing Two-piece inner ring	 BVV
	No cage Vertex of contact angles inside bearing Free-turning ring with separating balls	 BB
Double row, self-aligning	Raceway of outer ring spherical	 BS

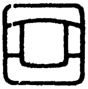
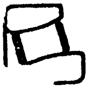
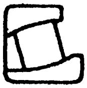
3.3.2 The symbols for various types of cylindrical roller bearings shall be as given below:

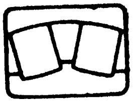
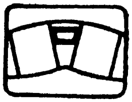
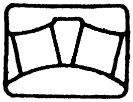
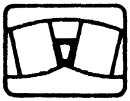
TYPE	DESCRIPTION	FIGURE AND SYMBOL
Single row, non-locating	Inner ring without ribs Double-ribbed outer ring Inner ring separable	 **RU**
	Inner ring without ribs Double-ribbed outer ring with one loose rib Both rings separable	 **RUP**
	Inner ring without ribs Double-ribbed outer ring Inner ring separable Spherical outside surface	 **RUA**
	Double-ribbed inner ring Outer ring without ribs Outer ring separable	 **RN**
	Double-ribbed inner ring Outer ring without ribs Outer ring separable Spherical outside surface	 **RNS**
	Inner ring without ribs Single-ribbed outer ring Both rings separable	 **RAB**
	Inner ring without ribs Roller located by cage and rings or internal snap rings Recessed in outer ring Inner ring separable	 **RM**
	Inner ring without ribs Outer ring without ribs Both rings separable	 **RNU**
Single row, one-direction locating	Single-ribbed inner ring Outer ring with two internal snap rings Inner ring separable	 **RR**
	Single-ribbed inner ring Double-ribbed outer ring Inner ring separable	 **RJ**
	Single-ribbed inner ring Double-ribbed outer ring with one loose rib Both rings separable	 **RJP**

Type	Description	Figure and Symbol
Single row, one direction locating	Double-ribbed inner ring Single-ribbed outer ring Outer ring separable	 RF
	Single-ribbed inner ring Outer ring with one rib and one internal snap ring Inner ring separable	 RS
	Single-ribbed inner ring Single-ribbed outer ring Both rings separable	 RAA
Single row, two-direction locating	Double-ribbed inner ring Outer ring with two internal snap rings Non-separable	 RK
	Double-ribbed inner ring Double-ribbed outer ring Non-separable	 RC
	Inner-ring with one rib and one snap ring Double-ribbed outer ring Non-separable	 RG
	Double-ribbed inner ring Double-ribbed outer ring with one loose rib Outer ring separable	 RP
	Double-ribbed inner ring Outer ring with one rib and one internal snap ring Non-separable	 RY
	Double-ribbed inner ring Double-ribbed outer ring Non-separable Spherical outer side surface	 RCS
	Double-ribbed inner ring with one loose rib Double-ribbed outer ring Inner ring separable	 RT

Type	Description	Figure and Symbol
Double row, non-locating	Inner ring without ribs Three integral ribs on outer ring Inner ring separable	 RA
	Three integral ribs on inner ring Outer ring without ribs Inner ring separable	 RD
	Inner ring without ribs Outer ring without ribs, with two internal snap rings Inner ring separable	 RE
Double row, two - direction locating	Three integral ribs on inner ring Outer ring without ribs, with two internal snap rings Non-separable	 RB
Multi-row, non-locating	Inner ring without ribs Double-ribbed outer ring (loose ribs) Both rings separable	 RV

3.3.3 The symbols for various types of self-aligning roller bearings shall be as shown below:

Type	Description	Figure and Symbol
Single row	Inner ring with ribs Raceway of outer ring spherical Radial contact	 SR
	Raceway of inner ring spherical Angular contact	 SB
	Raceway of outer ring spherical Angular contact	 SA

Type	Description	Figure and Symbol	
Double row	Three integral ribs on inner ring Raceway of outer ring spherical		SD
	Raceway of outer ring spherical Separate centre guide ring in outer ring		SE
	Raceway of inner ring spherical		SW
	Raceway of outer ring spherical Rollers guided by separate axially floating guide ring on inner ring		SC

Example:

A bearing designated by the code number 50BCO2 conveys the following information:

50 = 50 mm bore diameter;

BC = ball bearing, single row, non-filling slot assembly; and

02 = dimension series 02, in which a 50 mm bore bearing has 90 mm outside diameter and 20 mm width (*see* IS : 2513-1963[*]) (*see also* **B-2.1**).

3.4 Supplementary Number

3.4.0 When required to supplement the basic number of a ball or roller bearing, Section 2 shall express the data in 4 columns in case of ball bearings as shown in Table 6 and in 2 columns in case of roller bearing as shown in Table 7.

TABLE 6 SCHEMATIC ARRANGEMENT OF SECTION 2 FOR BALL BEARINGS

Section 2: Modification of Design

Column 1	Column 2	Column 3	Column 4
Cage and separators	Shields and seals		Bearing ring modification
	Duplex mounting modification		
A	A	A	A

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[*] Boundary dimensions for rolling bearings for general engineering purposes.

TABLE 7 SCHEMATIC ARRANGEMENT OF SECTION 2 FOR ROLLER BEARINGS

Section 2: Modification of Design

Column 1	Column 2
Cage and separators	Bearing ring modifications
A	A

3.4.1 *Cages and Separators*

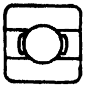
3.4.1.1 The symbols for cages and separators shall be as given below:

Symbol				Description
Column				
1	2	3	4	
X				Cage, any type acceptable
A				Cage, steel, sheet, strip form, ring centred
J				Cage, steel, sheet, strip or wire form, centred by rolling elements
F				Cage, steel, not in sheet, strip or wire form
Y				Cage, non-ferrous metal, sheet or strip form, centred by rolling elements
B				Cage, non-ferrous metal, sheet or strip form, ring centred
K				Cage, bronze or brass, not in sheet, strip or wire form, ring centred
M				Cage, bronze or brass, not in sheet, strip or wire form, centred by rolling elements
H				Cage, light metal, not in sheet, strip or wire form, ring centred
P				Cage, porous metal
D				Cage, non-metallic, ring centred
T				Cage, non-metallic, centred by rolling elements
Z				Separators or spring spacers
V				No cage or separators

3.4.1.2 The symbols for cages and separators shall be placed in column 1. When no supplementary number is shown, it shall be presumed that the bearing is provided with manufacturer's regular cage.

Example 1:

A bearing designated by the code number 50BC02 conveys the following information:



50 = 50 mm bore diameter;

BC = ball bearing, single row, radial contact, non-filling slot assembly;

02 = dimension series 02, in which a 50 mm bore bearing has 90 mm outside diameter and 20 mm width (*see* IS : 2513-1963*) (*see also* **B-2.1**); and

No supplementary number = Ball bearing with manufacturer's regular cage.

Example 2:

A bearing designated by the code number 50BC02J conveys the following information:

50 = 50 mm bore diameter;

BC = ball bearing, single row, radial contact, non-filling slot assembly;

02 = dimension series 02, in which a 50 mm bore bearing has 90 mm outside diameter and 20 mm width (*see* IS : 2513-1963*) (*see also* **B-2.1**); and

J = cage, steel, sheet, strip or wire form centred by rolling element.

3.4.2 *Shields and Seals*

3.4.2.1 The symbols for shields and seals in case of ball bearings shall be as follows.

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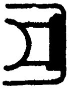
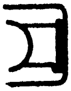
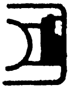
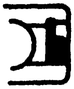
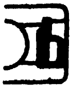
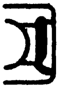
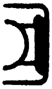
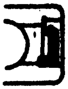
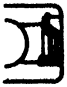
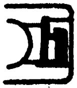
*Boundary dimensions for rolling bearings for general engineering purposes.

Symbol				Description	Figure
Column					
1	2	3	4		
	X	X		Spacer used when subsequent symbol is required	—
	A	A		Shield, removably fastened	
	P	P		Shield, permanently fastened	
	G	G		Contact seal any type acceptable	—
	B	B		Non-impervious contact seal, removably fastened	
	S	S		Non-impervious contact seal, permanently fastened	
	M	M		Non-impervious contact seal, combined with internal slinger, permanently fastened	
	D	D		Impervious contact seal, removably fastened	
	E	E		Impervious contact seal, permanently fastened	
	H	H		Labyrinth type seal, permanently fastened	
	K	K		Labyrinth type seal, removably fastened	
	V			Contact seal with external slinger, permanently fastened	

3.4.2.2 When a single shield or seal is used in the normal position, the location shall be indicated by placing the shield or the seal symbol in the second column.

The normal position for a shield or seal shall be as defined below:

a) For basically symmetrical ball bearings, for example, type BC	On either side
b) for tapered-bore ball bearings, excepting filling slot and non-separable counter-bore ball bearings	On the large bore side
c) For filling-slot ball bearings	Opposite the filling-slot side
d) For counter-bore ball bearings, for example, type BH	Opposite the large bore side of the outer ring
e) For basically symmetrical ball bearings with snap ring grove	Opposite snap ring groove

3.4.2.3 When a single shield or seal is used opposite the normal position, its location shall be designated by placing the shield or the seal symbol in the third column.

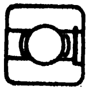
3.4.2.4 When two shields or two seals are used, the symbol shall be repeated.

3.4.2.5 When a combination of shield and seal is used, the shield symbol shall be placed in its proper column and the seal symbol shall fall in the other column (*see* **3.4.2.1** *and* **3.4.2.2**).

Example 1:

A bearing designated by the code number 50BC02XE conveys the following information:

50 = 50 mm bore diameter;



BC = ball bearing, single row, radial contact, non-filling slot assembly;

02 = dimension series 02, in which a 50 mm bore bearing has 90 mm outside diameter and 20 mm width (*see* IS : 2513-1963*) (*see also* **B-2.1**);

X = eage, any type of cage is acceptable; and

E = single impervious contact steel permanently fastened.

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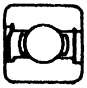
*Boundary dimensions for rolling bearings for general engineering purposes.

Example 2:

A bearing designated by the code number 50BC02XPE conveys the following information:

50 = 50 mm bore diameter;

BC = ball bearing, single row, radial contact, non-filling slot assembly;



02 = dimension series 02, in which a 50 mm bore bearing has 90 mm outside diameter and 20 mm width (*see* IS : 2513-1963*) (*see also* **B-2.1**);

X = cage, any type of cage is acceptable;

P = shield permanently fastened; and

E = impervious contact steel permanently fastened.

3.4.3 *Duplex Modification*

3.4.3.1 When ball bearings of types BC, BH, BM, BN, BA and BT are modified for duplex mounting, the symbols for pairs of such bearings shall be placed in column 2 or 3.

3.4.3.2 When the bearings in a duplex mounting are not provided with any shield or seal, the duplexing symbol shall be shown only in column 2.

3.4.3.3 When the bearings are provided with shield or seal, the symbol shall be shown in the column not required for the shield or seal symbol. The symbol for single bearings modified for duplex mounting shall be placed in column 4 and the following symbols shall be used:

SYMBOL				DESCRIPTION
Column				
1	2	3	4	
	R	R		Pair of bearings modified for duplex mounting back-to-back
	U	U		Pair of bearings modified for duplex mounting face-to-face
	T	T		Pair of bearings modified for duplex mounting in tandem
			D	Single bearing modified for duplex mounting back-to-back, face-to-face, or in tandem

---

*Boundary dimensions for rolling bearings for general engineering purposes.

Example 1.

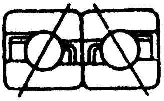
A bearing designated by the code number 50BA02XXXD conveys the following information:

50 = 50 mm size diameter;
BA = ball bearing, single row, angular contact, non-separable nominal contact angle from above 22° to and including 32°;
02 = dimension series 02, in which a 50 mm bore bearing has 90 mm outside diameter and 20 mm width (*see* IS : 2513-1963*) (*see also* **B-2.1**);
X = cage, any type of cage is acceptable;
X = spacer;
X = spacer; and
D = single ball bearing modified for duplex mounting back-to-back, and face-to-face or in tandem.

Example 2:

A bearing designated by the code number 50BA02XR conveys the following information:

50 = 50 mm size diameter;
BA = ball bearing, single row, angular contact, non-separable nominal contact angle from above 22° to and including 32°;

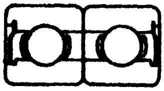


02 = dimension series 02, in which a 50 mm bore bearing has 90 mm outside diameter and 20 mm width (*see* IS : 2513-1963*);
X = cage, any type of cage is acceptable; and
R = pair of ball bearings modified for duplex mounting back-to-back.

Example 3:

A bearing designated by the code number 50BC02XPU conveys the following information:

50 = 50 mm size diameter;
BC = ball bearing, single row, serial contact, non-filling slot assembly;



02 = dimension series 02, in which a 50 mm bore bearing has 90 mm outside diameter and 20 mm width (*see* IS : 2513-1963*);
X = cage, any type of cage is acceptable;
P = each individual ball bearing with one shield, permanently fastened; and
U = pair of ball bearings modified for duplex mounting face-to-face.

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*Boundary dimensions for rolling bearings for general engineering purposes.

3.4.4 *Bearing Ring Modification*

3.4.4.0 In case of ball bearings, the bearing ring modification symbol shall be placed in column 4 and in case of roller bearings in column 2.

3.4.4.1 The symbols for snap ring grooves for ball bearings shall be as given below:

Symbol				Description
Column				
1	2	3	4	
				Snap ring groove on outside surface, snap ring not included:
			N	in normal position
			A	in reverse (or opposite the normal) position
				Snap ring groove on outside surface, snap ring included:
			G	in normal position
			C	in reverse (or opposite the normal) position

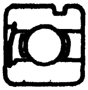
The normal position of the snap ring groove for ball bearing shall be as defined below:

a) For basically symmetrical bearings with cylindrical bore; for example, type BC with shield or seal	Either side; use ' normal position ' symbol
b) For basically symmetrical bearing with tapered bore; for example, type BC with tapered bore	Small bore side
c) For filling-slot bearings; for example, type BL	Filling-slot side
or	
For non-separable counter-bore bearings; for example, type BH	Counter-bore side

Example 1:

A bearing designated by the code number 50BC02XPXN conveys the following information:

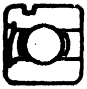
50 = 50 mm bore diameter;



BC = ball bearing, single row, radial contact, non-filling slot assembly;
02 = dimension series 02, in which a 50 mm bore bearing has 90 mm outside diameter and 20 mm width (*see* IS : 2513-1963*) (*see also* **B-2.1**);
X = cage, any type of cage is acceptable;
PX = single shield in normal position, that is, opposite snap ring groove side; and
N = snap ring groove on outside surface, snap ring not included.

Example 2:

A ball bearing designated by the code number 50BC02XXPN conveys the following information:



50 = 50 mm size diameter;
BC = ball bearing, single row, radial contact, non-filling slot assembly;
02 = dimension series 02, in which a 50 mm bore bearing has 90 mm outside diameter and 20 mm width (*see* IS : 2513-1963*) (*see also* **B-2.1**);
X = cage, any type of cage is acceptable;
XP = single shield in reverse position, that is, on snap ring groove side; and
N = snap ring groove on outside surface snap, ring not included.

3.4.4.2 The symbols for snap ring grooves for roller bearings shall be as given below:

Symbol		Description
Column		
1	2	
		Snap ring groove on outside surface, snap ring not included:
	N	in normal position
	A	in reverse (or opposite the normal) position
		Snap ring groove on outside surface, snap ring included:
	G	in normal position
	C	in reverse (or opposite the normal) position

---

*Boundary dimensions for rolling bearings for general engineering purposes.

The normal position of the snap ring grooves for roller bearings shall be as defined below:

a) For symmetrical roller bearings with cylindrical bore and outside surface and types RN, RJ and RT	Either side; use 'normal position' symbol
b) For roller bearings types RF, RS, RY, RAA and RAB	Integral rib side of the outer ring
c) For roller bearings type RG	Opposite side to integral rib side of the inner ring
d) For tapered bore roller bearings (excepting type RY)	Small bore side of tapered bore

3.4.4.3 The symbol for tapered bore for ball bearings shall be as given below:

SYMBOL				DESCRIPTION
Column				
1	2	3	4	
			K	Tapered bore 1 : 12 in normal position
			U	Tapered bore 1 : 12 in reverse (or opposite the normal) position

The normal position for a tapered bore is defined as having the small bore side:

a) For basically symmetrical bearings; for example, type BC with shield or seal and snap ring groove	On either side; use 'normal position' symbol
b) For filling-slot bearings; for example, type BL	On filling-slot side
or	
For counter-bore bearings; for example, type BH	On counter-bore side of outer ring

Example:

A ball bearing designated by the code number 50BS02JXXK conveys the following information:

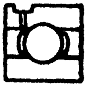
50 = 50 mm size diameter;
BS = ball bearing, double row, self-aligning, racewav of outer ring spherical;
02 = dimension series 02, in which a 50 mm bore bearing has 90 mm outside diameter and 20 mm width (*see* IS : 2513-1963*);
J = cage, steel sheet or strip form, centred by rolling elements;
X = spacer;
X = spacer; and
K = tapered bore 1 : 12.

3.4.4.4 The symbol for tapered bore for roller bearings shall be as given below:

SYMBOL		DESCRIPTION
Column		
1	2	
	K T	Tapered bore 1 : 12 Tapered bore 1 : 30

A tapered bore symbol is applicable only to roller bearings for symmetrical inner ring.

3.4.4.5 The symbols for miscellaneous bearing ring modifications for ball bearing shall be as given below:

SYMBOL				DESCRIPTION	FIGURE
Column					
1	2	3	4		
			L	Modification for lubrication through an outer bearing part	

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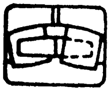
*Boundary dimensions for rolling bearings for general engineering purposes.

3.4.4.6 The symbols for miscellaneous bearing modifications for roller bearing shall be as given below:

Symbol		Description
Column		
1	2	
	L	Modification for lubrication through an outer bearing part
	Z	Separate thrust collar included (in cylindrical roller bearings)

Example 1:

A ball bearing designated by the code number 200SD23XKL conveys the following information:



200 = 200 mm bore diameter;

SD = self-aligning roller bearing, double row, three integral ribs on inner ring, raceway of outer ring spherical;

23 = dimension series 23;

X = cage, any type of cage is acceptable;

K = tapered bore 1 : 12; and

L = lubrication through an outer bearing part.

GROUP II

4. THRUST BALL AND ROLLER BEARINGS

4.1 The schematic arrangement of a complete ISO code number for thrust ball and roller bearings is as given in Table 8.

4.1.1 The code number is divided into five sections, of which Section 1 constitutes the basic number and Sections 2 to 5 constitute the supplementary number. No symbol in Section 1 shall be omitted.

4.1.2 When Sections 2 to 5 are not needed, no symbol is shown. When one or more intermediate sections are not needed, the letter X is used for Sections 2 and 4 and numeral 0 for Section 3 to space other sections apart. Unused sections that otherwise would end a number are not shown.

TABLE 8 SCHEMATIC ARRANGEMENT OF A COMPLETE ISO CODE NUMBER

Basic Number			Supplementary Number				
Section 1			Section 2		Section 3	Section 4	Section 5
Type and boundary dimensions			Modification of design				
Bore	Type	Outside diameter and height	Cage and separators	Additional modifications	Tolerances	Lubricants and preservatives	Special requirements
0000	AAA	00	A	A	0	A	000

4.2 The schematic arrangement of a complete ISI code number for thrust ball and roller bearings shall be as given in Table 9.

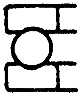
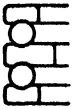
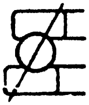
TABLE 9 SCHEMATIC ARRANGEMENT OF A COMPLETE ISI CODE NUMBER FOR THRUST BALL AND ROLLER BEARINGS

Basic Number			Supplementary Number	
Section 1			Section 2	
Types and boundary dimensions			Modification of Design	
Bore	Type	Outside diameter and height	Cage and separators	Additional modifications
000	AAA	00	A	A

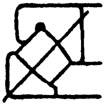
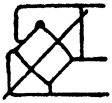
4.2.1 No symbol shall be employed in case Section 2 is not used and no symbol in Section 1 shall be omitted.

4.3 Thrust Bearing Type Symbols

4.3.1 The symbols for various types of thrust ball bearings shall be as follows:

SYMBOL	DESCRIPTION	FIGURE
TA	Single direction, grooved raceways, flat seats	
TDC	Double-direction, grooved raceways, flat seats, small bore centre washer	
TAA	Single row, angular contact where a line through the ball contact points forms an angle from above 45° to and including 75° with a perpendicular to the bearing axis of rotation	

4.3.2 The symbols for various types of thrust roller bearings shall be as given below:

SYMBOL	DESCRIPTION	FIGURE
TS	Self-aligning, single-direction, flat seats, asymmetrical barrel-shaped rollers	
TSA	Self-aligning, single-direction, flat seats, symmetrical barrel	

Example 1:

A thrust ball bearing designated by the code number 50TA12 conveys the following information:

50 = 50 mm size diameter;
TA = thrust ball bearing, single-direction, grooved raceways, flat seats; and
12 = dimension series 12, in which a 50 mm bore thrust ball bearing has 78 mm outside diameter and 22 mm height (*see* IS : 2513-1963*) (*see* **B-2.2**).

---

*Boundary dimensions for rolling bearings for general engineering purposes.

4.4 Supplementary Number

4.4.1 When required to supplement the basic number of thrust bearings, Section 2 shall express the data by the letter code arranged in one or two columns as shown in Table 10.

TABLE 10 SCHEMATIC ARRANGEMENT OF SECTION 2 FOR THRUST BALL AND ROLLER BEARINGS

Section 2 Modification of Design

COLUMN 1	COLUMN 2
Cage and separators A	Additional modifications A

4.4.2 When Section 2 is used, column 1 shall always be shown but column 2 may be omitted where not necessary.

4.5 The cage or separator symbols shall be as given below:

SYMBOL		DESCRIPTION
Column		
1	2	
Z		Cage, any type acceptable
A		Cage, steel, sheet or strip form, ring centred
J		Cage, steel, strip or wire form, centred by rolling elements
F		Cage, steel, not in sheet, strip or wire form
Y		Cage, non-ferrous metal, sheet or strip form, centred by rolling element

SYMBOL		DESCRIPTION
Column		
1	2	
B		Cage, non-ferrous metal, sheet or strip form, ring centred
K		Cage, bronze or brass, not in sheet, strip or wire form, ring centred
M		Cage, bronze or brass, not in sheet, strip or wire form, centred by rolling elements
H		Cage, light metal, not in sheet, strip or wire form ,ring centred
P		Cage, porous metal
D		Cage, non-mettallic, ring centred
T		Cage, non-metallic, centred by rolling elements
Z		Separators or spring spacers
V		No cage or separators

4.5.1 The cage or separator symbols shall be placed in column 1.

Example:

A thrust ball bearing designated by the code number 50TA12A conveys the following information:

50 = 50 mm bore diameter;
TA = thrust ball bearing, single-direction, grooved raceways, flat seats;
12 = dimension series 12, in which a 50 mm bore thrust ball bearing has 78 mm outside diameter and 22 mm height (*see* IS : 2513-1963*); and
A = cage, steel, sheet or strip form, ring centred.

GROUP III

5. TAPERED ROLLER BEARINGS

5.1 The schematic arrangement for a complete ISO code number for tapered roller bearings is given in Table 11.

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*Boundary dimensions for rolling bearings for general engineering purposes.

TABLE 11 SCHEMATIC ARRANGEMENT OF A COMPLETE INTERNATIONAL CODE NUMBER FOR TAPERED ROLLER BEARINGS

Basic Number			Supplementary Number					
Section 1			Section 2		Section 3		Section 4	Section 5
Type and boundary dimensions			Modification of design		Internal fit and tolerances			
Bore	Type	Outside diameter and width	Cage	Bearing rings	Internal fit	Tolerances	Lubricants and preservatives	Special requirements
0000	AAA	00	A	A	0	0	A	000

5.1.1 The code number is divided into 5 sections, Section 1 constitutes the basic number and Sections 2 to 5 constitute the supplementary number. No symbol in Section 1 shall be omitted.

5.1.2 When Sections 2 to 5 are not needed, no symbol is shown. When one or more intermediate sections are not needed, the letter X is used for Sections 2 and 4 and the numeral 0 for Section 3 to space other sections apart. Unused sections when otherwise would end a number, are not shown.

5.2 The schematic arrangement of a complete ISI code number for tapered roller bearings shall be as given in Table 12.

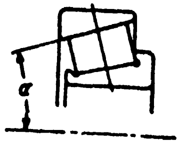
TABLE 12 SCHEMATIC ARRANGEMENT OF A COMPLETE ISI CODE NUMBER FOR TAPERED ROLLER BEARINGS

Basic Number			Supplementary Number	
Section 1			Section 2	
Type and boundary dimensions			Modification of design	
Bore	Type	Outside dia width	Cage	Bearing ring
0000	AAA	00	A	A

5.2.1 No symbol shall be employed in case Section 2 is not used.

5.3 Bearing Type Symbols

5.3.1 The symbols for tapered roller bearings, single row, shall be as given below:

SYMBOL	DESCRIPTION	FIGURE
KA	Contact angle α from above 0° to and including 10°	
KB	Contact angle α from above 10° to and including 17°	
KC	Contact angle α from above 17° to and including 24°	
KD	Contact angle α from above 24° to and including 32°	
KE	Contact angle α from above 32° to and including 45°	

Example:

A tapered roller bearing designated by the code number 50KB22 conveys the following information:

50 = 50 mm bore diameter;

KB = tapered roller bearing, single row, contact angle α over 10° to 17° inclusive; and

22 = dimension series 22, in which a 50 mm bore bearing has 90 mm outside diameter and 24·75 mm bearing width (*see* IS : 3697-1966*) (*see* **B-2.3**).

5.4 When required to supplement the basic number of tapered roller bearing, Section 2 shall express the data by means of the letter code arranged in two columns as given in Table 13 when the section is used, column 1 shall always be used but column 2 may be omitted, when not otherwise needed.

TABLE 13 SCHEMATIC ARRANGEMENT OF SECTION 2 FOR TAPERED ROLLER BEARINGS

COLUMN 1	COLUMN 2
Cage	Bearing ring modification
A	A

---

*Boundary dimensions for tapered roller bearings.

5.5 The symbols for cages shall be as given below:

SYMBOL		DESCRIPTION
Column		
1	2	
X		Cage, any type acceptable
J		Cage, steel, sheet or strip form
F		Cage, steel, not in sheet or strip form
Y		Cage, non-ferrous metal, sheet or strip form
M		Cage, bronze or brass, not in sheet or strip form
H		Cage, light metal, not in sheet or strip form
P		Cage, porous metal
T		Cage, non-metallic
V		No cage

5.5.1 The cage symbols shall be placed in column 1.

5.5.2 The bearing-ring modification symbol shall be placed in column 2.

5.6 The tapered bore symbol shall be as given below:

SYMBOL		DESCRIPTION
Column		
1	2	
	K	Tapered bore 1 : 12 in normal position
	U	Tapered bore 1 : 12 in reverse (opposite the normal) position

APPENDIX A

(*Clause* 0.3)

IDENTIFICATION CODE FOR ADAPTER AND WITHDRAWAL SLEEVES

A-1. SCHEMATIC ARRANGEMENT

A-1.1 The schematic arrangement of code number for adapter and withdrawal sleeves shall be as given in Table 14.

TABLE 14 SCHEMATIC ARRANGEMENT OF CODE NUMBER FOR ADAPTER AND WITHDRAWAL SLEEVES

Sleeve Bore	Nominal Diameter of Bearing Bore		Type	Sleeve Length
000	Hyphen	000	AAA	000

A-1.2 The sleeve bore shall be the nominal diameter of the shaft on which the sleeve is to be used.

A-1.3 The nominal diameter of bearing bore shall be the nominal diameter of the tapered bore at the small end of the taper.

A-1.4 The sleeve length shall be the nominal length of the adapter sleeve or the nominal overall length of the withdrawal sleeve and bearing ring.

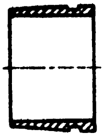
A-2. SLEEVE TYPE SYMBOLS

A-2.1 The sleeve type symbol shall be as given below:

Symbol	Description
HMB	Adapter sleeve with nut and locking device-taper 1 : 12
HR	Withdrawal sleeve, taper 1 : 12

Example:

A sleeve having the code number 145 150 HR 119 conveys the following information:



145 = 145 mm nominal shaft diameter:

150 = 150 mm nominal diameter of bearing bore at the small bore end:

HR = withdrawal sleeve, taper 1:12; and

119 = 119 mm nominal overall length of withdrawal sleeve and bearing ring.

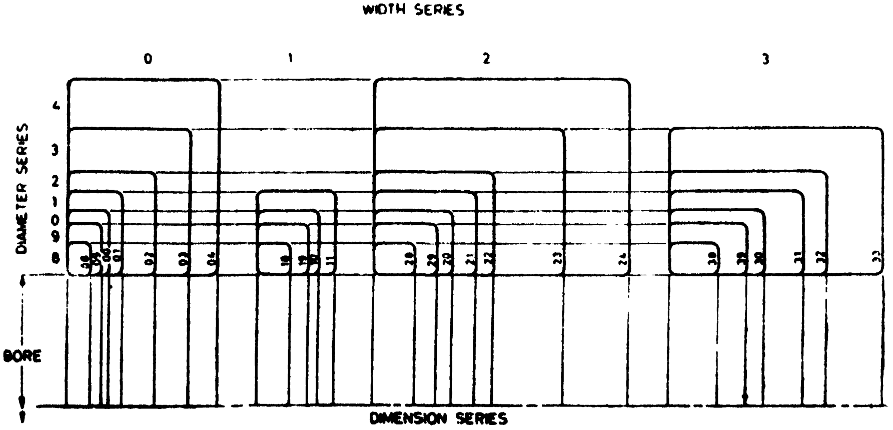
APPENDIX B

(*Clause* 0.3)

BOUNDARY DIMENSIONS FOR ROLLING BEARINGS

B-1. OUTSIDE DIAMETER AND WIDTH SERIES

B-1.1 The basic boundary dimensions of radial bearings (except tapered roller bearings) are set up so that for a given bore, there are several outside diameters defined as diameter series 8, 9, 0, 1, 2, 3, and 4. For each of these diameter series, there are several width dimensions defined as width series 0, 1, 2, 3, 4, 5 and 6. The combination of width and diameter series numerical codes form a two-digit dimensional series code, the first digit indicating the '' width series ' and the second digit indicating the ' diameter series '. However, the dimensional series codes do not reveal the bearing dimensions directly and reference shall be made to appropriate standards. These series are illustrated in the figure below:



B-2. BOUNDARY DIMENSION SERIES

B-2.1 The boundary dimension series for ball and roller bearing shall be as given below:

DIAMETER SERIES	WIDTH SERIES	DIMENSION SERIES	CODE USED FOR IDENTIFICATION	SERIES
0	1	10	10	Extra light
2	0	02	02	Light
3	0	03	03	Medium
4	0	04	04	Heavy

B-2.2 The boundary dimension series for thrust ball bearings with grooved races and flat seats shall be as given below:

DIAMETER SERIES	WIDTH SERIES	DIMENSION SERIES	CODE USED FOR IDENTIFICATION	SERIES
1	1	11	11	Extra light
2	1	12	12	Light
3	1	13	13	Medium
4	1	14	14	Heavy

B-2.3 The boundary dimensions for tapered roller bearings shall be as given below:

DIAMETER SERIES	WIDTH SERIES	DIMENSION SERIES	CODE USED FOR IDENTIFICATION	SERIES
2	0	02	02	Extra light
3	0	03	03	Light
2	2	22	22	Medium
3	2	23	23	Heavy

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